

NASA TECH BRIEF

Lyndon B. Johnson Space Center



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Inspection of Transparent Surfaces Using Photosensitive Paper

The problem:

One of the most common methods of spotting window flaws is by visual inspection. Aircraft and spacecraft windows are inspected that way. Although the method is simple, its accuracy is questionable because it relies on the visual acuity of the inspector, the intensity of available light, and the angle of observation.

The solution:

A series of experiments were performed to evaluate different light conditions and photographic equipment in the detection of window flaws. Results show that the best accuracy is obtained with fiber optics and photosensitive contact paper.

How it's done:

The entire operation is performed in a darkroom. The window surface to be inspected is laid flat on top of a photosensitive paper. The opposite side of the glass is covered by black cloth, which is commonly used in photography. The window edges are then illuminated by a light flash from a 150-watt light bulb through fiber optics. The duration of the flash depends on the sensitivity of the paper used (approximately 1.8 seconds). The exposed paper is then processed and inspected.

The paper shows the scratches, bubbles, dust particles, and fingerprints that are on the glass surface. Any of

the defects that may have been missed on the glass surface by visual inspection are now clearly shown on the exposed contact paper.

Note:

Requests for further information may be directed to:
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Reference: TSP74-10224

Patent status:

This invention is owned by NASA, and a patent application has been filed. Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

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